

ABSTRACT OF THE INVENTION

The present invention relates to methods for enhancement of naturally occurring cytoplasmic male sterility and for restoration of male fertility and uses thereof in hybrid crop production. There is also disclosed a method for restoration of male fertility to cytoplasmic male sterile plants; which comprises the steps of: a) introducing into the nucleus of a plant cell a gene construct essentially consisting of a sequence encoding a mitochondrial transit peptide fused upstream of and in frame with an edited form of a normal mitochondrial gene that is co-transcribed with an unusual CMS-associated mitochondrial gene; b) selecting for plant cells that have acquired the gene construct in step a); and c) inducing regeneration of selected plant cells to produce a mature plant.

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The present invention relates to methods for reducing pollen production in plants . In particular, the present invention relates to a method of reducing pollen production in plants, which comprises the steps of (a) introducing into the nucleus of a plant cell a gene construct essentially consisting of a developmentally regulated promoter driving expression of a sequence encoding a mitochondrial transit peptide fused upstream of and in frame with an edited form of the orf224 gene of *Brassica napus* mitochondria, wherein said promoter is expressed during stamen development, (b) selecting for plant cells that have acquired the gene construct in step (a), and (c) inducing regeneration of selected plant cells to produce a mature plant with reduced pollen production.